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CURRENT LITERATURE

BOOK REVIEWS

Hardwoods of Australia

Ten years ago BAKER¹ published an elaborate book on the pines of Australia. He immediately commenced work upon a companion volume dealing with the native hardwoods, and some of the material was on exhibition at the Sydney Technological Museum, of which Dr. BAKER has long been the director. The work has now been completed, and it brings great credit, not only to the author,² but to the Museum and Commonwealth for undertaking and financing an unusually expensive investigation.

The dominant object of the work is to make known to Australians, and to the world in general, the diversity and economic value of the Australian hardwoods. In America, and doubtless in many other countries, the popular mind has become so accustomed to mahogany as the conventional wood for pianos, victrolas, and fine furniture, that other woods, which might be stronger and more beautiful, receive scant recognition.

BAKER has had various kinds of plain and ornamental furniture, plain and carved interior furnishings, and a great variety of useful and ornamental things, from carved gables to railway bridges, made from native woods, and has shown conclusively that Australians do not need to go outside their own country for any kind of timber. The needs of the architect, builder, engineer, cabinet-maker, and forester are kept in mind, and valuable suggestions, based upon practical experiments, form a feature of the work.

It is interesting to learn that not less than nine-tenths of the Australian trees are hardwoods. The United States and Canada have about 700 species of trees; Australia has about 500, but many of them have a wide range. The genus with the largest number of species, the greatest variety in hardness, color, and finish, as well as the widest distribution, is *Eucalyptus*; and in reforestation the genus could hardly be surpassed, for the blue gum in 24 years becomes as large as the English oak in 200 years. One figure of *Eucalyptus regnans* shows annual rings with a width of more than a centimeter. This is not cited as a record, for the author remarks that a specimen of *Sequoia sempervirens* at Reefton, New Zealand, known to be 27 years old, was "nearly 3 ft. in diameter, with some of the rings measuring an inch in width." This means that reforestation would be so rapid that it would have an immediate practical aspect. Species of *Acacia* yield extremely hard timber, some as red

¹ BAKER, RICHARD I., and SMITH, HENRY G., A research on the pines of Australia. 4to. pp. xvi+548. Sydney. Government of New South Wales. 1910.

² BAKER, RICHARD T., The hardwoods of Australia and their economics. 4to. pp. xvi+523. Sydney. The Government of New South Wales. 1919. £1. 5s.

as rosewood, some as black as ebony, while others have a lighter color. Species of *Casuarina* also yield hard wood of various colors, some looking like oak already fumed.

The hardness and weight of *Eucalyptus* timbers are due to the predominance of thick-walled fibers. In some of the extremely hard woods of the genus the vessels are almost entirely blocked by tyloses. The figure in the wood is not due to large rays, as in oaks, but to the fact that fibers and wood elements run in waves. In color, this single genus furnishes perfect imitations of maple, locust, cherry, mahogany, and rosewood; while the timber, as hard and strong as any of these, takes a magnificent polish.

The taxonomic sequence follows that of BENTHAM and HOOKER. In each case there is a systematic diagnosis, with geographical range, and a description of the timber and its uses. Local names are given in addition to the scientific names. The rank in a scale of hardness and the weight per cubic foot are also given, and some of this information is summed up in a table according to hardness: extremely hard, very hard, hard, and moderate. In most cases photomicrographs illustrate transverse, longitudinal radial, and longitudinal tangential sections, which not only show the structure but also indicate the strength, hardness, and weight of the wood.

An unusual feature is a table of combustibility. Since wood in Australia is used to a considerable extent in railroad bridges and in shipbuilding, resistance to fire is a very desirable quality. By means of a "xylopyre" the time required to burn up a piece of wood of a definite size was determined with great accuracy. These tests show that many of the Australian woods are remarkably resistant to fire. In this quality *Eucalyptus Fletcheri* easily heads the list, with 19 minutes required to burn the test piece; next comes *Syncarpia laurifolia*, with 12 minutes; then *Casuarina torulosa*, with 8 minutes; followed by many species of *Eucalyptus* ranging from 7 minutes down to 3 minutes. The significance is evident when we note that in the same test our *Pseudotsuga Douglasii* has a time limit of 4 minutes, *Quercus alba* 3 minutes, *Juglans* sp., *Fagus sylvatica*, and *Sequoia sempervirens* less than 3 minutes.

A striking feature of the work, and one most likely to give it immediate practical importance, is a series of 126 magnificent plates in color, illustrating the natural appearance of the wood. These plates, together with the photographs of various articles, inside furnishings, buildings, etc., prove the variety and value of the Australian hardwoods.

The timely warnings, calling attention to the desirability of sane lumbering methods and the necessity for reforestation, should be heeded while the timber supply is still abundant.—C. J. CHAMBERLAIN.

NOTES FOR STUDENTS

Form and growth of trees.—In 1913 the Schnyder von Wartensee Foundation opened a prize competition of three years' duration "to stimulate new investigations upon the growth in thickness of trees." First prizes